

REMARKS/ARGUMENTS

Claims 4-23 are pending in this application.

Claims 4-23 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicants' Admitted Prior Art Figs. 9 and 10 (AAPA) in view of Takahiro et al. (JP 2001-050241). Applicants respectfully traverse the rejection of Claims 4-23.

Claim 4 recites:

A laminated coil comprising:
a laminated body;
via holes formed in a lamination direction of said laminated body;
conductors disposed on laminating surfaces of the laminated body
and fixed end portions of which are connected thereto by the via holes;
and

a coil wound in a direction that is substantially perpendicular to the lamination direction; wherein

the via holes are disposed in each ceramic layer constituting the laminated body and define through-holes, each being filled with a conductor material and arranged along a row in the lamination direction;
and

in each of the through-holes, a difference between a diameter in an axial direction of the coil on an opening surface of one opening of the ceramic layer and a diameter in the axial direction of the coil on an opening surface of another opening is smaller than a difference between a diameter in a direction that is substantially perpendicular to the axial direction of the coil on the opening surface of said one opening of the ceramic layer and a diameter in a direction that is substantially perpendicular to the axial direction of the coil on the opening surface of said another opening. (emphasis added)

Applicants' Claim 15 recites features that are similar to the features recited in Applicants' Claim 4, including the above-emphasized feature.

With the unique combination and arrangement of features recited in Applicants' Claims 4 and 15, including the feature of "in each of the through-holes, a difference between a diameter in an axial direction of the coil on an opening surface of one opening of the ceramic layer and a diameter in the axial direction of the coil on an opening surface of another opening is smaller than a difference between a diameter in a

direction that is substantially perpendicular to the axial direction of the coil on the opening surface of said one opening of the ceramic layer and a diameter in a direction that is substantially perpendicular to the axial direction of the coil on the opening surface of said another opening.” Applicants have been able to provide a laminated coil in which, while the spacing between adjacent via holes in the axial direction of a coil is prevented from being narrowed, the inner space of each via hole can be increased so as to reduce the resistance in the via holes, and also provide a method for producing such a novel laminated coil (see, for example, the first full paragraph on page 4 of the substitute specification).

In Section No. 3 on page 2 of the outstanding Office Action, the Examiner alleged that AAPA teaches all of the features recited in Claims 4 and 15, except for the feature of “in each of the through-holes, a difference between a diameter in an axial direction of the coil on an opening surface of one opening of the ceramic layer and a diameter in the axial direction of the coil on an opening surface of another opening is smaller than a difference between a diameter in a direction that is substantially perpendicular to the axial direction of the coil on the opening surface of said one opening of the ceramic layer and a diameter in a direction that is substantially perpendicular to the axial direction of the coil on the opening surface of said another opening.” The Examiner further alleged that Takahiro et al. teaches this feature. Thus, the Examiner concluded that it would have been obvious “to form the thru-hole in such shape as taught by Takahiro [et al.] to the laminated coil as disclosed by figures 9-10 of prior art admitted by applicant[s]. The motivation would have been to improve the connection dependability of the conductor due to the cross sectional area of the thru-hole becoming smaller towards the bottom of the thru-hole.” Applicants respectfully disagree.

In contrast to the Examiner’s allegations, although the through holes 24 of Takahiro et al. have a similar shape to the through holes according to the present invention, the arrangement of the through holes of Takahiro et al. with respect to the coil is completely different from the arrangement of the through holes recited in Applicants’

Claims 4 and 15. Particularly, as seen in Fig. 2 of Takahiro et al., the through holes 24 are arranged such that the longer diameter thereof extends in a direction parallel to the a longitudinal direction of the coil conductor patterns 23a and 23, whereas, in the present invention, the longer dimension of the through holes 5 extends in a direction perpendicular to the longitudinal direction of the coil conductor patterns 14.

Thus, if the through holes 24 of Takahiro et al. were used in the laminated coil of AAPA, the through holes would be arranged such that, in each of the through-holes, a difference between a diameter in an axial direction of the coil on an opening surface of one opening of the ceramic layer and a diameter in the axial direction of the coil on an opening surface of another opening would be greater than a difference between a diameter in a direction that is substantially perpendicular to the axial direction of the coil on the opening surface of said one opening of the ceramic layer and a diameter in a direction that is substantially perpendicular to the axial direction of the coil on the opening surface of said another opening. In other words, the combination of AAPA and Takahiro et al. would produce a laminated coil in which the through holes would be arranged exactly opposite to the arrangement of through holes recited in Applicants' Claims 4 and 15. Takahiro et al. fails to teach or suggest that the through holes 24 could or should be arranged in any other arrangement other than as shown in Fig. 2 of Takahiro et al.

Therefore, the combination of AAPA and Takahiro et al. certainly fails to teach or suggest the feature of "in each of the through-holes, a difference between a diameter in an axial direction of the coil on an opening surface of one opening of the ceramic layer and a diameter in the axial direction of the coil on an opening surface of another opening is smaller than a difference between a diameter in a direction that is substantially perpendicular to the axial direction of the coil on the opening surface of said one opening of the ceramic layer and a diameter in a direction that is substantially perpendicular to the axial direction of the coil on the opening surface of said another opening" (emphasis added) as recited in Applicants' Claims 4 and 15.

In addition, Applicants respectfully submit that it would not have been obvious to change the arrangement the through holes of Takahiro et al. such that the through holes would be arranged in the laminated coil of AAPA in the manner recited in Applicants' Claims 4 and 15, because neither AAPA nor Takahiro et al. provides any teaching or suggestion of the desirability of such a modification. The Examiner is reminded that the mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification. In re Gordon, 221 USPQ 1125 (Fed. Cir. 1984).

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of Claims 4 and 15 under 35 U.S.C. § 103(a) as being unpatentable over AAPA in view of Takahiro et al.

In view of the foregoing remarks, Applicants respectfully submit that Claims 4 and 15 are allowable. Claims 5-14 and 16-23 depend upon Claims 4 and 15, and are therefore allowable for at least the reasons that Claims 4 and 15 are allowable.

In view of the foregoing remarks, Applicants respectfully submit that this application is in condition for allowance. Favorable consideration and prompt allowance are solicited.

To the extent necessary, Applicants petition the Commissioner for a Two-Month Extension of Time, extending to October 10, 2006 (October 8, 2006 falls on a Sunday and October 9, 2006 falls on a federal holiday), the period for response to the Office Action dated May 8, 2006.

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The Commissioner is authorized to charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1353.

Respectfully submitted,

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